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USSR OPEN-PIT MINING, THOUGH INCREASING, NEEDS STEPPING UP

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Open-pit mining has increased five times, and the volume of stripping operations has increased nine times in the past 10 years in the USSR. At present, this method is in use in almost all coal combines of the east, in Central Asia, and in the Ukraine.

All open pits are now equipped with SE-3 excavators with a bucket capacity of 3 cubic meters, ESh-1 walking draglines with a bucket capacity of 3.4 cubic meters, Uralets cable drilling machines, PBS rotary drilling machines, track movers, dump cars with a load capacity of 50 tons, and heavy steam-driven locomotives. Two open pits have converted entirely to electric traction, having electric locomotives with a capacity of 80 and 150 tons.

In 1951, enterprises of the Vakhrushevugol' Trust put into operation the first open-pit excavator on caterpillar tread, equipped with a power shovel with a bucket capacity of 15 cubic meters, and two walking excavator draglines with a bucket capacity of 10 cubic meters and a boom 75 meters in length.

The extensive use of excavator-draglines has led to a further increase of the nontransport method of overburden removal. By this method, the excavator replaces expensive railroad transport in removing rock to dumps within the pit. The volume of removal by this method has increased almost three times in the last 5 years.

Use of the SE-3 excavator resulted in an increase in the height of the pit benches from 8-10 to 18-20 meters and a reduction of 25 percent in pit railroad operations as of 1951.

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In a number of pits, loud-speaker communications have been established between the dispatcher and the working brigades, and in pits of the Vakhrushevugol', Volchanskugol', and Korkinugol' trusts, remote control of belt conveyers has been initiated. Centralization and block signaling are being introduced in pits of the Korkinugol' Trust.

The following mining defects must be remedied before open-pit mining can show a capacity performance:

1. Basic mining and transport equipment are unsatisfactorily utilized in the pits. For example, in the Korkinugol' Trust, excavators were used for only 40 percent of the rock loaded onto railroad cars. In 1951, excavators in use in the Raychikhugol' Trust completed only 80 percent of the plan for overburden removal and 65 percent of the plan for loading.

2. Heavy and labor-consuming work such as transfer of railroad tracks, track repair, and delivery of explosives to the mine faces and of water for the drilling machines, as well as clearing of the roof of the seam, are being mechanized only very slowly.

3. The rate of electrifying railroad transport is very inadequate. Electric traction, in successful operation since 1948 in two pits of the Vakhrushevugol' and Korkinugol' trusts, has not completely replaced steam traction in other pits of the same trusts, and it is not being introduced in other coal basins. At present, electric haulage amounts to only 16 percent of total haulage. Centralization and block signaling intended to increase railroad traffic capacity and the safety of train movements are poorly organized.

4. Most effective nontransport methods of overburden removal are being developed at an unpardonably slow rate. The volume of work by this method increased in 1951, but it still totaled only 13 percent of the entire amount of overburden removal.

Although production costs of coal mined by the open-pit method are only 40-50 percent as much as coal mined by the underground method and labor productivity is 2.5 to three times as high, the average yearly increase of underground mining during the last 5 years was 5 percent more than the one for open-pit mining.

One of the reasons for the low increase in open-pit mining is the fact that capital construction plans for the construction of new pits are not being fulfilled, and, as a matter of fact, only three pits were put into operation in 1950. Lags in the construction of briquetting plants also limit the performance of many pits mining lignite intended for briquetting.

The shortage of coal-cleaning plants makes it impossible, in a number of cases, to mine already uncovered coal seams. This leads to coal losses in the Korkino, Volchansk, and other pits. When coal is mined under these circumstances, rock has to be removed manually, thus sharply reducing labor productivity.

In 1951, more than 35 overburden-removal excavators in pits of the Vakhrushevugol', Korkinugol', and Karagandauglerazrez trusts almost reached capacity performance. On some days, for example, the productivity of the SE-3 excavator amounted to 5,500-6,000 cubic meters. The following table indicates the average daily productivity of the SE-3 excavator during a 4-month period in the Vakhrushevugol' and Karagandauglerazrez trusts:

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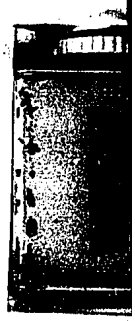

Month	Vakhrushevugol' Trust			Karagandauglerazrez Trust		
	No of Excavators With Av Daily Productivity			No of Excavators With Av Daily Productivity		
	(above 4,000 cu m)	(3,500-4,000 cu m)	(3,000-3,500 cu m)	(above 4,000 cu m	(3,500-4,000 cu m)	(3,000-3,500 cu m)
Jun	3	2	1	1	--	--
Jul	4	4	5	5	1	2
Aug	4	6	5	4	3	2
Sep	5	6	4	4	3	3

It is planned to convert all open pits to a two-shift plan of work on a sliding schedule. Strict adherence to a schedule should raise the productivity of the overburden excavators 15-20 percent in 1952.

In spring 1951, the Vakhrushevugol' Trust shut down all mining transport in its pits for a 10-day repair period. Because of the high-grade repairs carried out by the trust, its pits exceeded the 1951 plan for overburden removal by 2 million cubic meters, produced above-plan coal supplies, and increased the productivity of the excavators and locomotives more than 15 percent. The Severnyy Pit of the Vakhrushevugol' Trust achieved the following record in the second and third quarters of 1951, indicated in percentage of the same period of 1950: performance of excavators, 153 percent; performance of locomotives, 132 percent; completion of production norm, 135 percent; and increase in workers' earnings, 120 percent.

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